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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,689	12/04/2003	Hidetaka Ohazama	107156-00215	5658

7590 12/12/2006  
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EXAMINER

NGUYEN, DILINH P

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/726,689

Applicant(s)

OHAZAMA, HIDETAKA

Examiner

DiLinh Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,5-10 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,5-10,13,14 and 16 is/are allowed.
- 6) ☒ Claim(s) 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Objections*

Claims 10 and 15 are objected to because of the following informalities:

Line 7, claim 10, replace "each edge of said insulating layers" with --an edge of said insulating layer--.

Line 16, claim 15, replace "layers" with --layer--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiyama (U.S. Pat. 6448663) (newly cited) in view of Tsutomu (JP 10-014428) (newly cited).

Uchiyama discloses an interconnection structure of conductive wirings for interconnecting a pair of interconnection objects by a thermocompression bonding, in which the conductive wirings are disposed on the interconnection objects, respectively, comprising:

interconnection portions 16 and 130 formed of conductive wiring patterns on a surface of each supporting body of the interconnection objects 2 and 13, the interconnection portions being provided with gaps between adjacent ones;

an anisotropic conductive film 6 containing conductive particles 60 therein, the film 6 being interposed between the interconnection portions 16 and 130 disposed on the respective interconnection objects 2 and 13; and

an accumulating space formed in the respective gaps between the conductive wiring patterns in order to prevent an over-density of the conductive particles 60 flown out from the interconnection portions to the gaps due to the thermocompression bonding from occurring.

Uchiyama does not disclose an insulating layer cover the supporting body.

However, Tsutomu discloses a device structure comprising:

a spacer 5 forming of an epoxy resin material; a resist 7 forming except for the electrode terminal area; wherein an edge of the spacer 5 or resist 7 is included in a region of the thermocompression bonding (cover fig., abstract and paragraph 0006).

Therefore, it would have been obvious to one having ordinary in the art at the time the invention was made to have an edge of the spacer 5 or resist 7 as taught by Tsutomu into the device of Uchiyama in order to prevent a short circuit and the region of the thermocompression connection for the device structure.

#### **REASONS FOR ALLOWANCE**

Claims 1-2, 5-10, 13-14 and 16 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record fails to disclose the combination of a semiconductor device structure recited in the base claims 1, 8-19, 13-14 and 16, including the combination of the structure comprising: an accumulating space in the supporting body and preventing

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an over-density of the conductive particles flown out from the interconnection portions to the gaps due to the thermocompression bonding from occurring, a concave portion formed in the substrate and wherein the concave portion receives conductive particles flown out from the anisotropic film due to the thermocompression bonding, a hole portion formed by penetrating the substrate in respectively gaps between the conductive wiring patterns on the substrate and wherein the hole portion receives conductive particles flown out from the anisotropic film due to the thermocompression bonding, a retreated concave portion formed at an edge of the insulating layer adjacent to the interconnection portions and wherein the retreated concave portion receives conductive particles flown out from the anisotropic conductive film due to the thermocompression bonding.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

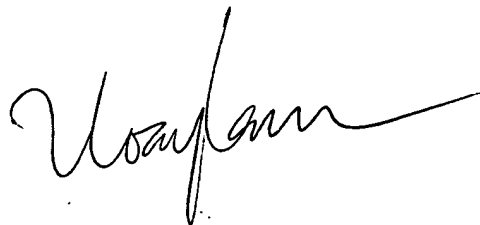
Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DLN

A handwritten signature in black ink, appearing to read 'Hoai Pham', with a long horizontal flourish extending to the right.

HOAI PHAM  
PRIMARY EXAMINER